APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,360	03/22/2001	Sean T. Boerner	BoernerTrend	4877

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RICK B. YEAGER, ATTORNEY
10805 MELLOW LANE
AUSTIN, TX 78759

EXAMINER
NGUYEN, NGA B

ART UNIT	PAPER NUMBER
3692	

MAIL DATE	DELIVERY MODE
08/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	09/815,360	BOERNER, SEAN T.
	Examiner	Art Unit	
	Nga B. Nguyen	3692	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the Amendment filed on May 24, 2007, which

paper has been placed of record in the file.

2.   Claims 1-26 are pending in this application.

Response to Arguments/Amendment

3.   Applicant's arguments with respect to claims 1-26 have been considered but

are moot in view of new grounds of rejection.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Gatto,

U.S. Patent No. 7,167,838.

Regarding to claim 1, Gatto discloses a computer- implemented method, for

breaking a time series into a plurality of discontinuous trends, the method comprising:

inputting time series data, the time series comprising a plurality of data elements, at least a portion of which represents a trend which is generally increasing or decreasing (column 8, lines 55-65 and column 11, lines 10-50)

selecting a plurality of sets of trend determination parameters (column 13, lines 5-65);

selecting a useful group of sets of trend determination parameters for the time series from the plurality of sets of trend determination parameters, such that the useful group of sets includes at least one member (column 12, lines 50-65);

processing the time series with each member of the useful group of sets of trend determination parameters to generate a set of trends and trend attributes for each member (column 11, lines 30-50); and

outputting the trends and trend attributes (figure 12 and column 15, lines 35-60).

Regarding to claim 2, Gatto further discloses deciding, based on the composite results of a plurality of the members of the useful group of sets of trend determination parameters, whether the newest data element of the time series represents a continuation of trend such that the trend is increasing, decreasing or flat (column 12, lines 52-65).

Regarding to claim 3, Gatto further discloses inputting time series data further comprises inputting a plurality of time series data sets to a computer; and selecting a particular time series from a plurality of time series data sets (column 13, lines 40-50).

Regarding to claim 4, Gatto further discloses inputting time series data further comprises inputting a plurality of vector datasets to a computer; and selecting a

particular vector data set from a plurality of time series data sets (column 14, lines 5-30).

Regarding to claim 5, Gatto further discloses wherein selecting a particular time series from a plurality of time series data sets further comprises for each of the plurality of time series data sets: selecting at least a portion of the elements in the data set to create a selected data subset; normalizing the selected data subset to generate a normalized subset for the time series; storing the normalized subset on the computer; calculating, on a processor, the slope of a best-fit polynomial regression through the normalized subset; and selecting a particular time series that has a large absolute slope and a large correlation coefficient between the trend and the data elements (column 12, lines 10-35).

Regarding to claim 6, Gatto further discloses specifying a range of values for each of a plurality of trend determination parameters; and generating the sets of trend determination parameters by selecting unique combinations of trend determination parameter values, such that the values are within the range of values for each of the plurality of trend determination parameters (column 12, lines 10-35).

Regarding to claim 7, Gatto further discloses wherein specifying a range of values for each of a plurality of trend determination parameters further comprises specifying a minimum value for a first trend determination parameter of initial data window size; specifying a maximum value for a first trend determination parameter of initial data window size; specifying a minimum value for a second trend determination parameter of

deviation limit; and specifying a maximum value for a second trend determination

parameter of deviation limit (column 14, lines 5-30).

Regarding to claim 8, Gatto further discloses specifying a range of potential

values for each of a plurality of trend determination parameters; creating an objective

function from at least one indications of trend results, such that the objective function

generates a resultant value for a set of trend determination parameters; and selecting a

useful group of sets of trend determination parameters by applying an optimization

procedure to the objective function and the range of potential values for each of the

plurality of trend determination perimeters (columns 17-20).

Regarding to claim 9, Gatto further discloses wherein selecting a useful group of

sets of trend determination parameters for the time series from the plurality of sets of

time series parameters further comprises for each trend determination parameter set:

applying the trend determination parameters to at least a portion of the time series data

elements, thereby generating at least one trend and at least one trend attribute

parameter; identifying the dynamic trend and at least one dynamic trend attribute

parameter; calculating at least one indication of trend results between the time series

and the trend set; and storing at least one indication of trend results on the computer;

and selecting at least one set of trend determination parameters based on at least one

indication of trend results for each of the sets (column 12, lines 50-65).

Regarding to claim 10, Gatto further discloses wherein applying the trend

determination parameters to at least a portion of the time series data elements thereby

generating at least one trend and at least one trend attribute parameter further

comprises: assigning each of the data elements to at least one trend by generating a

first trend with at least a portion of the data elements; identifying the first trend as the

current trend; evaluating each subsequent data element to determine whether the data

element is a continuation of the current trend, and assigning the data element to the

current trend if it is a continuation of the current trend, and assigning the data element

to a new trend if it is not continuation of the current trend, and identifying the new trend

as the current trend; and determining at least one trend attribute for each trend

(columns 11-12).

Regarding to claim 11, Gatto further discloses wherein calculating at least one

indication of trend results between the time series and trend set further comprises:

calculating at last one measure from the group consisting of: the number of trends in the

subset of the time series, the RMS Error between the input data values and trend

values, the average trend length; the average trend length divided by the minimum

number of data points needed to define a trend (window size parameter), the average

percent return of the trends, the summed cumulative percent return of the trends; the

fraction of correct predictions, the fraction of incorrect predictions, the quotient of the

root mean square error and the average length of the trends divided by the minimum

number of data points needed to define a trend, and the RMS error, the efficiency of the

trends, where efficiency is defined as the average return of the trends divided by the

average length of the tends, and compounded return of the tends (figure 34 and column

39, lines 12-65).

Regarding to claim 12, Gatto further discloses wherein selecting at least one set
of trend determination parameters based on at least one indication of trend results for
each of the sets further comprises plotting on a graph a representative data point for
each of the plurality of sets of trend determination parameters and its associated trend
results, where a first axis represents a first measure of trend results and a second axis
represents a second measure of trend results; and selecting from the graph at least one
data point that represents a trend determination parameters set that has desirable trend
results (see figures 9-11).

Regarding to claim 13, Gatto further discloses wherein plotting on a graph a
representative data point for each of the plurality of sets of trend determination
parameters and their associated trend results and selecting from the graph at least one
data point that represents a parameters set that has desirable trend results further
comprises: plotting on a graph a representative data point for each of the plurality of
sets of trend determination parameters, where the y-axis represents the product of the
root mean square error and the deviation limit for the set of trend determination
parameters, and the x-axis represents the average trend length for the set of trend
determination parameters; and selecting at least one set of trend determination
parameters associated with a point from the graph that has a minimum value for the
product of the root mean square error and the deviation limit for a given average trend
length (see figure 34).

Regarding to claim 14, Gatto further discloses wherein plotting on a graph a
representative data point for each of the plurality of sets of trend determination

parameters and their associated trend results and selecting from the graph at least one

data point that represents a parameters set that has desirable trend results further

comprises: plotting on a graph a representative data point for each of the plurality of

sets of trend determination parameters, where the y-axis represents the root mean

square error for the set of trend determination parameters, and x-axis represents the

average trend length for the set of trend determination parameters; and selecting at

least one set of trend determination parameters associated with a point from the graph

that has a minimum value for the root mean square error for a given average trend

length (see figure 34).

Regarding to claim 15, Gatto further discloses wherein plotting on a graph a

representative data point for each of the plurality of sets of trend determination

parameters and their associated trend results and selecting from the graph at least one

data point that represents a parameters set that has desirable trend results further

comprises: plotting on a graph a representative data point for each of the plurality of

sets of trend determination parameters, where the y-axis represents the summed

cumulative percent return of the trends for the set of trend determination parameters,

and x-axis represents the average percent return for the set of trend determination

parameters; and selecting at least one set of trend determination parameters associated

with a point from the graph that has a maximum value for both the summed cumulative

percent return and the average percent return (see figures 9-11).

Regarding to claim 16, Gatto further discloses wherein plotting on a graph a

representative data point for each of the plurality of sets of trend determination

parameters and their associated trend results and selecting from the graph at least one

data point that represents a parameters set that has desirable trend results further

comprises: plotting on a graph a representative data point for each of the plurality of

sets of trend determination parameters, where the y-axis represents the summed

cumulative percent return of the trends for the set of trend determination parameters,

and x-axis represents the action of correct predictions for the set of trend determination

parameters; and selecting at least one set of trend determination parameters associated

with a point from the graph that has a maximum value for both the summed cumulative

percent return and the fraction of correct predictions (figures 9-11).

Regarding to claim 17, Gatto further discloses wherein plotting on a graph a

representative data point for each of the plurality of sets of trend determination

parameters and their associated trend results and selecting from the graph at least one

data point that represents a parameters set that has desirable trend results further

comprises: plotting on a graph a representative data point for each of the plurality of

sets of trend determination parameters, where the y-axis represents the average

percent return of the trends for the set of trend determination parameters, and x-axis

represents the fraction of correct predictions for the set of trend determination

parameters; and selecting at least one set of trend determination parameters associated

with a point from the graph that has a maximum value for both the average percent

return and the fraction of correct predictions (see figures 9-11).

Regarding to claim 18, Gatto further discloses wherein plotting on a graph a

representative data point for each of the plurality of sets of trend determination

parameters and their associated trend results and selecting from the graph at least one

data point that represents a parameters set that has desirable trend results further

comprises: plotting on a graph a representative data point for each of the plurality of

sets of trend determination parameters, where the y-axis represents the average

percent return for the trends for the set of trend determination parameters, and x-axis

represents the average trend length for the set of trend determination parameters;

and selecting at least one set of trend determination parameters associated with a

point from the graph that has a maximum value for the average percent return for

a given average trend length (see figures 9-11).

Regarding to claim 19, Gatto further discloses wherein selecting at least one set

of trend determination parameters based on at least one indication of trend results for

each of the sets further comprises: specifying an objective function that incorporates at

least one measure of trend results, such that minimization of the objective function

produces desirable trend results'; applying an optimization technique to the objective

function such that the optimization technique minimizes the objective function; and

selecting at least one set of trend determination parameters as a result of minimizing

the objective function (columns 17-20).

Regarding to claim 20, Gatto further discloses wherein processing the time series

with each member of the useful group of sets of trend determination parameters to

generate a set of trends and trend attributes for each member further comprises

for each member applying the trend determination parameters to at least a portion

of the time series data elements, thereby generating at least one trend and at least

one trend attribute parameter; and identifying the dynamic trend and at least one

dynamic trend attribute parameter; and storing at least one dynamic trend attribute

parameter on the computer (column 12, lines 50-65).

Regarding to claim 21, Gatto further discloses wherein applying the trend

determination parameters to at least a portion of the time series data elements thereby

generating at least one trend and at least one trend attribute parameter further

comprises: assigning each of the data elements to at least one trend by generating a

first trend with at least a portion of the data elements; identifying the first trend as the

current trend; evaluating each subsequent data element to determine whether the data

element is a continuation of the current trend, and assigning the data element to the

current trend if it is a continuation of the current trend, and assigning the data element

to a new trend if it is not continuation of the current trend, and identifying the new

trend ms the current trend; and determining at least one trend attribute for each trend

(column 12, lines 50-65).

Regarding to claim 22, Gatto further discloses wherein generating a first trend

with at least a portion of the data elements further comprises: recalling the first trend

determination parameter, the data window size, from the set of trend determination

parameters; forming a proposed trend data set by selecting a number of data elements

from the time series, such that the number of data elements selected is at least as large

as the value of the data window size trend determination parameter; calculating a first

best-fit curve through the proposed trend data set; and identifying the best fit curve as

the first trend (column 14, lines 5-30).

Regarding to claim 23, Gatto further discloses wherein evaluating each

subsequent data element to determine whether the data element is a continuation of the

current trend is further comprises: forming a proposed trend data set from the selected

data elements; calculating a new best-fit curve through the proposed trend data set;

calculating at least one measure of predictive error for the new best-fit curve with

respect to the values of the data elements in the proposed trend data set; projecting the

best-fit curve to the location of the subsequent data element; evaluating the deviation of

the subsequent data element from the projected best-fit curve value at the new location;

and applying at least one acceptance criteria to the measure of predictive error, and if

the acceptance criteria is met setting the subsequent data element to the proposed

trend data set, identifying the new best-fit curve ms the current trend, and if the

acceptance criteria is not met setting the subsequent data element to a new trend

set, determining a new trend, and identifying the new trend as the current trend (column

12, lines 35-50).

Regarding to claim 24, Gatto further discloses wherein calculating at least one

measure of predictive error for the new best-fit curve with respect to the values of the

data elements in the proposed data set further comprises evaluating the derivative of

the best-fit curve; obtaining an estimated value of the best-fit curve at the new element;

calculating the residuals between the proposed trend data set and the new best-fit

curve; normalizing the residuals; quantifying the spread of the distribution of the

normalized residuals; calculating the deviation of predicted trend value at the new

element from the actual value of the new element; and normalizing the deviation of

predicted trend value at the new element from the actual value of the new element

using the spread of the distribution of normalized residuals (figure 34).

Regarding to claim 25, Gatto further discloses wherein applying at least one

acceptance criteria to the measure of predictive error further comprises: designating a

first test criterion as true if the sign of the derivative of the trend curve generated

through the proposed trend dataset changes compared to the sir of the derivative of the

trend curve generated previously; designating a second test criterion as true if the

absolute value of normalized deviation exceeds the deviation limit parameter;

designating a third test criterion as true if the absolute value of normalized deviation

exceeds the deviation limit parameter and the normalized deviation is in the opposite

direction œs the direction of the trend as designated by the derivative of the trend curve

through the proposed trend dataset; designating a fourth test criterion as true if the

correlation coefficient between the proposed trend curve and the proposed trend data

set decreases below the correlation limit parameter; designating a fifth test criterion as

true if the number of times that the absolute value of normalized deviation exceeds the

deviation limit parameter; and the normalized deviation is in the opposite direction as

the direction of the trend as designated by the derivative of the trend curve through the

proposed trend dataset; exceeds the number of values parameter; designating a sixth

test criterion as true if the absolute value of the normalized deviation from a flat trend

exceeds the flat trend deviation limit; and determining whether at least one of the first,

second, third, fourth, fifth, and sixth test criteria is true (column 39, lines 12-65).

Claim 26 is written in means and contains similar limitations found in claims 1-25 above, therefore, is rejected by the same rationale.

Conclusion

6.   Claims 1-26 are rejected.

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Nga B. Nguyen whose telephone number is (571-272-6796. The examiner can normally be reached on Monday-Thursday from 9:00AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Abdi can be reached on (571) 272-6702.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3600.

8.   Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
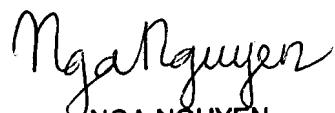
P.O. Box 1450

Alexandria, VA 22313-1450

Or faxed to:

(703) 872-9306 (for formal communication intended for entry),

or

(571) 273-0325 (for informal or draft communication, please label

"PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Knox building, 501 Dulany

Street, Alexandria, VA, First Floor (Receptionist).

NGA NGUYEN
PRIMARY EXAMINER

August 15, 2007